INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior

National Park Service

All or some of the information you provide may become available to the public.

OMB # (1024-0236)
Exp. Date (11/30/2010)
Form No. (10-226)

Reporting Year:	**Park:**	**Select the type of permit this report addresses:**
2007	Shenandoah NP	Scientific Study

Name of principal investigator or responsible official:	**Office Phone:**
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Additional investigators or key field assistants (first name, last name, office phone, office email)
No co-investigators

Project Title (maximum 300 characters):
GEOLOGIC EVOLUTION OF MESOPROTEROZOIC BASEMENT, BLUE RIDGE PROVINCE, SHENANDOAH NATIONAL PARK, VIRGINIA

Park-assigned Study or Activity #:	**Park-assigned Permit #:**	**Permit Start Date:**	**Permit Expiration Date:**
SHEN-00133	SHEN-2001-SCI-0011	Mar 15, 2001	Dec 31, 2010

Scientific Study Starting Date:	**Estimated Scientific Study Ending Date:**
Mar 15, 2001	Dec 31, 2010

For either a Scientific Study or a Science Education Activity, the status is:	**For a Scientific Study that is completed, please check each of the following that applies:**
Continuing	__ A final report has been provided to the park or will be provided to the park within the next two years __ Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park __ All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed

Activity Type:
Research

Subject/Discipline:
Geology / General

Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters):
This study is designed to foster an improved understanding of the tectonic and petrologic evolution of Mesoproterozioc igneous and metamorphic rocks constituting the geologic basement of the Blue Ridge province of Virginia. The project involves detailed field mapping of bedrock exposures, petrologic and geochemical analysis of representative samples, and U-Pb isotopic analysis of zircons. The integrated data set is being used to improve current models for the geologic evolution of the Grenville orogen in Virginia.

Findings and status of Scientific Study or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters):

Work this year was concentrated on areas located along the periphery of the National Park where detailed geologic mapping and sampling for geochemical and U-Pb geochronologic isotopic analyses was carried out. Much of the mapping involved field checking and updating of previous mapping studies completed over two decades ago by scientists from the Virginia Division of Mineral Resources. Our new mapping completed field work in the area encompassing the northern portion of Shenandoah National Park and will be included in a new geologic map of the Shenandoah region to be published by the U.S. Geological Survey. Specifically, our work during the past year concentrated on Mesoproterozoic basement rocks including circa 1060 Ma old leucocratic granitoids, circa 1020 Ma old biotite-rich granitoids, circa 1160 Ma old charnockitic gneiss, and circa 1160 Ma old granitic gneiss (Flint Hill Gneiss). Abundant exposures located in some parts of the area provided opportunities for exceptionally detailed characterization of these rocks. We also assisted scientists from the U.S. Geological Survey in efforts to improve understanding of the nature and timing of volcanic eruptions that occurred in the area about 570 m.y. ago.

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?

Yes

If "Yes", identify where the specimens currently are stored:

Specimens are stored at George Washington University in Washington, DC and at the U.S. Geological Survey Headquarters in Reston, VA.

Funding specifically used in this park this reporting year that was provided by NPS (enter dollar amount):	**Funding specifically used in this park this reporting year that was provided by all other sources (enter dollar amount):**
$0	$20000

List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year: